IN THE CLAIMS:

The text of all pending claims, (including withdrawn claims) is set forth below. Cancelled and not entered claims are indicated with claim number and status only. The claims as listed below show added text with underlining and deleted text with ~~strikethrough~~. The status of each claim is indicated with one of (original), (currently amended), (cancelled), (withdrawn), (new), (previously presented), or (not entered).

Please CANCEL claims 1, 2 and 21-24 without prejudice or disclaimer and AMEND claim 6 in accordance with the following:

1 -2 (**cancelled**)

3. (**original**) A signal processing apparatus for reproducing an original recorded signal a_k from a predetermined channel signal y(t), the apparatus comprising:

a maximum error region determining unit which determines a region having a maximum likelihood of error from the channel signal y(t);

an optimal path searching unit which uses only an error signal at the region having the maximum likelihood of error determined by the maximum error region determining unit to find a minimum error generation path and to correct a part of the channel signal; and

a signal recovery unit which applies a predetermined algorithm to the channel signal y(t) in which the part of the signal has been corrected by the optimal path searching unit in order to recover the original recorded signal a_k.

4. (**original**) The apparatus of claim 3, wherein the maximum error region determining unit determines an interval, during which a probability of an input of a channel, from which the channel signal y(t) is reproduced, not being the same as an output of the channel is higher than a reference error rate determined by characteristics of the channel, to be the region having the maximum likelihood of error.

5. (**original**) The apparatus of claim 3, wherein, where the channel signal y(t) is reproduced from an optical disc, the maximum error region determining unit sets a predetermined level to determine a predetermined interval positioned in the vicinity of a crossing point of the predetermined level and the channel signal y(t).

6. (**currently amended**) The apparatus of ~~claim 6~~claim 3,wherein, where the channel signal y(t) is reproduced from a hard disc, the maximum error region determining unit sets predetermined upper and lower levels to determine a predetermined interval positioned in the vicinity of a crossing point of each of the upper and lower levels and the channel signal y(t).

7. (**original**) The apparatus of claim 3, wherein the optimal path searching unit compares a predetermined reference signal with a signal along each of a plurality of possible error paths present in the region having the maximum likelihood of error to select the error path having a signal difference smaller than respective signal differences corresponding to the other possible error paths.

8. (**original**) The apparatus of claim 7, wherein the optimal path searching unit replaces the signal along the selected error path with the reference signal.

9. (**original**) The apparatus of claim 3, wherein the optimal path searching unit uses a reference signal to obtain an error path wherein the reference signal is an ideal channel signal model output where a signal b_n having a bit sequence including a component of the original recorded signal a_k and a level transition portion passes through a channel without being subjected to noise.

10. (**original**) The apparatus of claim 9, wherein the signal b_n satisfies a run-length limited constraint of the original recorded signal a_k.

11. (**original**) The apparatus of claim 9, wherein the optimal path searching unit searches for possible error paths for a signal $y_1(t)$ at the region having the maximum likelihood of error detected by the maximum error region determining unit, compares a signal along each of the error paths with the reference signal to determine respective signal differences, and determines the signal along the error path having the smallest signal difference as an optimal path signal.

12. (**original**) The apparatus of claim 11, wherein the determined optimal path signal is

replaced by the reference signal.

13. (**original**) The apparatus of claim 3, wherein the signal recovery unit recovers the original signal a_k from the channel signal y(t) using a threshold decision.

14. (**original**) A signal processing method of reproducing an original signal a_k from a channel signal y(t), the method comprising:

modeling a predetermined signal that has passed through a channel without being subjected to noise to obtain a reference signal x(t);

obtaining a maximum error interval from the channel signal y(t);

extracting possible error paths from a signal $y_1(t)$ which corresponds to the part of signal y(t) occurring during the maximum error interval;

computing respective differences between a signal corresponding to each of the possible error paths and the reference signal x(t) and replacing the signal corresponding to the error path having the smallest signal difference with the reference signal x(t), thereby correcting the signal $y_1(t)$ during the maximum error interval; and

recovering the original signal a_k from the channel signal y(t) including the corrected signal $y_1(t)$.

15. (**original**) The method of claim 14, wherein the reference signal x(t) is the result of convolution of the information b_k, having a bit sequence including a component of the original signal a_k recorded on a recording medium and a level transition portion, and a transfer function h(t) representing characteristics of the channel.

16. (**original**) The method of claim 15, wherein the information b_k satisfies a run-length limited constraint of the original signal a_k recorded on the recording medium.

17. (**original**) The method of claim 14, wherein, where the channel signal y(t) is reproduced from an optical disc, the maximum error interval is obtained by setting a predetermined level to determine a predetermined interval positioned in the vicinity of a crossing point of the predetermined level and the channel signal y(t) as a maximum error region.

18. (**original**) The method of claim 14, wherein, where the channel signal y(t) is reproduced from a hard disc, the maximum error interval is obtained by setting predetermined upper and lower levels to determine a predetermined interval positioned in the vicinity of a crossing point of each of the upper and lower levels and the channel signal y(t) as a maximum error region.

19. (**original**) The method of claim 14, wherein, where the channel signal y(t) has at least two signal levels, the maximum error interval is obtained by setting a respective reference level between each of the two or more signal levels to determine an interval in the vicinity of a crossing point of one of the respective reference levels and the channel signal y(t) as a maximum error region.

20. (**original**) The method of claim 14, wherein the recovery of the signal is performed by recovering the recorded original signal a_k through a threshold decision.

21 -24. (**cancelled**)